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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF APPEALS

APPEAL BRIEF FOR THE APPELLANTS

Naoki MORITA et al.

Serial No.: 10/049,629

Field: February 22, 2002

Group Art Unit: 2125

Examiner: Elliot L. Frank

P.T.O. Confirmation No.: 7771

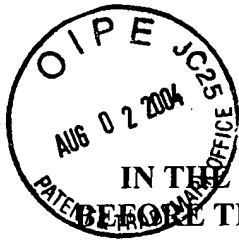
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Date: August 2, 2004
Attorney Docket No.: **020028**



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Appeal No:

In re the Application of: **Naoki MORITA et al.**

Group Art Unit: **2125**

Serial No.: **10/049,629**

Examiner: **Elliot L. Frank**

Filed: **February 22, 2002**

P.T.O. Confirmation No.: **7771**

For: **NC MACHINING ASSISTING SYSTEM**

BRIEF ON APPEAL

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

August 2, 2004

Sir:

Following the filing of the Notice of Appeal on June 2, 2004, the following is the Appellants' Appeal Brief. In accordance with 37 C.F.R. §1.192(a), this brief is being filed in triplicate. A check in the amount of three hundred twenty dollars (\$330.00) is included for the filing fee of this Appeal Brief.

I. REAL PARTY IN INTEREST

The real parties in interest are Mori Seiki Co., LTD., 160 Kitakoriyama-cho, Yamatokoriyama-shi, Nara, 639-1160 Japan; Okuma Corporation, 32, Tsujimachi, 1-Chome, Kita-ku, Nagoya-shi, Aichi 462-0032, Japan; and Kazuo Yamazaki, 1500 7th Street, #7-0, Sacramento, California 95814.

II. RELATED APPEALS AND INTERFERENCES

There are no other related appeals of interferences.

III. STATUS OF CLAIMS

This is an appeal from the action of the Examiner, dated February 2, 2004, finally rejecting claims 1-3. Claims 1-3 are appealed and are set forth in the attached APPENDIX.

The claims, specification, drawings and abstract stand as amended by the filing of an Amendment under 37 C.F.R. §1.111 dated January 16, 2004.

IV. STATUS OF AMENDMENTS

No amendments have been filed after the final rejection of February 2, 2004.

V. SUMMARY OF THE INVENTION

One Embodiment of the Invention

This invention relates to an improved Numerical Control (NC) machining assisting system, which connects a plurality of NC machine tools to a central manager via a network. The NC machine tools each include NC program generating means, and NC program improving and updating means for improving the NC program generating means so as to generate an optimum program according to an actual machining state. The central manager is supplied with actual machining performance information from the respective NC machine tools via the network each time a machining operation is completed. The central manager generates a machining know-how

database from the received actual machining performance information from the respective NC machine tools. Subsequently, each of the NC machine tools is permitted to freely use the machining know-how database generated by the central manager, which allows one NC machine tool to easily reuse actual machining performance information obtained by the other respective NC machine tools for drastic improvement of the use efficiency of the machine tools, since a machine tool, even if, having no performance record for a certain machining operation, can select machining conditions optimum for the machining operation based on the actual machining performance of the other respective NC machine tools.

In one detailed example of one embodiment of the invention, as illustrated in Fig. 2, a plurality of network oriented machine tools 28 (NC Machine tools) are connected to a central manager 1 via a network connecting means 26. Further, as shown in Fig. 3, each NC machine tool 104, 105 includes an NC program executing means 107, which is supplied with an NC program generated by the NC program set-up instruction and operation instruction generating means 103. Upon receiving the NC program, the NC program executing means 107 of the NC machine tool 104,105, executes the NC program and a machining operation is started by an operator.

After the machining operation is completed, actual machining performance information from the respective NC machine tool 104, 105 is extracted by a machining history extracting means 109, and supplied to the database generating means 117. The database generating means

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117 then uses the extracted actual machining performance information to generate a machining know-how database 2 in the central manager 1.

Subsequently, as shown in Figs. 15 – 18, an NC machine tool is able search the machining know-how database 2, which includes a work piece database 3, a task determination database 4, a cutting condition database 5, a tool database 6, a jig database 7, a machine specification database 8, a machining history database 9, a machine operation history database 10, a tool use history database 11 and a jig use history database 12, in order to update and improve the generated NC program generated by the NC program set-up instruction and operation instruction generating means 103 such that an optimum program according to an actual machining state is generated for the NC machine tool.

VI. ISSUES

The issue presented for review before the Board in this Appeal is whether claims 1 – 3 are properly rejected under 35 U.S.C. §103(a) as being unpatentable over Salvo et al. (U.S. Patent No. 6,496,751) in view of Poth (U.S. Patent No. 6,445,959).

VII. GROUPING OF THE CLAIMS

Claims 1 - 3 are considered to stand or fall together.

VIII. ARGUMENTS

Claims 1 – 3 are rejected under 35 U.S.C. §103(a) as being unpatentable over Salvo et al. in view of Poth.

The present claimed invention calls for *an NC machining assisting system comprising: a plurality of NC machine tools each including NC program generating means and NC program improving and updating means that are connected to a central manager via a network; actual machining performance information is supplied to the central manager from the respective NC machine tools; the central manager generates a database on the basis of the collected actual machining performance information and stores the database therein; and the NC machine tools are each permitted to retrieve information necessary for machining from the database.*

It is respectfully submitted that Savlo fails to disclose or fairly suggest *an NC machining assisting system comprising: a plurality of NC machine tools each including NC program generating means and NC program improving and updating means that are connected to a central manager via a network*, as called for in each of independent claims 1 and 2.

Instead, Salvo is only concerned with monitoring the process variables of a single process machine 10, and not a plurality of NC machine tools. Moreover, the process machine 10 of Salvo fails to constitute the claimed NC machine tool since the process machine 10 fails to include an NC program generating means and NC program improving and updating means.

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In addition, it is respectfully submitted that Salvo still fails to disclose or fairly suggest the features of independent claims 1 and 2 concerning *actual machining performance information is supplied to the central manager from the respective NC machine tools; the central manager generates a database on the basis of the collected actual machining performance information and stores the database therein.*

That is, Salvo fails to disclose that actual machining performance information from a plurality of process machines 10 is supplied to a central manager. In other words, while Salvo may disclose that machine process variables from the machine process 10 and the various sensor assemblies 12, 121-129 and 221 are transmitted and stored in the data module 13 and machine operator control unit 15 before being transmitted to control unit 40 wherein control unit 40 includes software for data acquisition, data mining, and analysis to thereby enable process analysis and decision making, Salvo fails to disclose that the control unit 40 or any other control unit performs the analysis based on machine process variables received from a plurality of machine processes 10.

Instead, Salvo merely discloses that the control unit 40 performs the analysis based on machine process variables received from a single machine process 10. For example, according to Salvo, "The process variable information can also be stored by the process management system for archival reasons. Thus, if a party requests production information of a product from the process machine 10 on a certain data and time, the information can be readily and quickly retrieved by the

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process management system 1.”¹ (Emphasis added).

In addition, more importantly, Salvo fails to disclose that *the central manager generates a database on the basis of the collected actual machining performance information and stores the database therein*, as called for in each of independent claims 1 and 2.

That is, there is simply no support in Salvo that the control unit 40 or any other control unit generates a database on the basis of the collected machine process variables received from a plurality of machine processes 10.

Moreover, it is respectfully submitted that the Examiner has failed to properly consider Appellants’ argument that the control unit 40 or any other control unit in Salvo fails to generate a database on the basis of the collected machine process variables received from a plurality of machine processes 10, since the Examiner has not provided any rebuttal argument(s) with regard to this issue and has not specifically pointed out which portion(s) of the Salvo reference the Examiner is relying upon for teaching these features of the present claimed invention.

Finally, Salvo also fails to disclose the claimed feature of claim 1 concerning *NC machine tools are each permitted to retrieve information necessary for machining from the database*.

¹ Please see, lines 36 – 41, column 15 of Salvo.

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That is, the Examiner argues that:

Salvo discloses a machine terminal that, in addition to controlling a process machine, may analyze process data in order to improve the process (column 13, lines 6 – 18). This machine is part of a network that also houses a central controller. The central control may archive data files for use by any consumer requiring process data (column 15, lines 36 – 56).²

However, the Examiner is clearly mis-characterizing the teachings of Salvo. More specifically, Salvo does not disclose in column 13, lines 6 -18 that a machine process 10 analyzes process data in order to improve the process. Instead, Salvo is describing the machine operator control unit 15 and the control unit 40, each of which fails to constitute an NC machine tool.

Further, as discussed above, the disclosure in column 15, lines 36 – 56 of Salvo is only concerned with control unit 40 archiving data files based on machine process variables received from a single machine process 10.

This is in contrast to the present invention, for example, wherein the central manager collects actual operation performance records from a plurality of NC machine tools via a network, generates a database on the basis of the collected actual machining performance information, which are classified according to a machining type and which can widely be supplied from the central manager to the NC machine tools to be used in subsequent machining.

² Please see, lines 16 – 21, page 6 of the Action dated October 17, 2004.

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In addition, it is respectfully submitted that the applied secondary reference of Poth fails to disclose the above-noted drawbacks and deficiencies of the primary reference of Salvo with regard to both independent claims 1 and 2.

That is, Salvo and Poth, singly or in combination, fail to disclose or fairly suggest the features of the present claimed invention concerning *an NC machining assisting system comprising: a plurality of NC machine tools each including NC program generating means and NC program improving and updating means that are connected to a central manager via a network; actual machining performance information is supplied to the central manager from the respective NC machine tools; the central manager generates a database on the basis of the collected actual machining performance information and stores the database therein; and the NC machine tools are each permitted to retrieve information necessary for machining from the database.*

IX. CONCLUSIONS

As set forth above, it is respectfully asserted that the prior art fails to teach or suggest the recitations of the claims. The Appellants respectfully request the Board to reverse the Examiner's rejection and allow this application to issue.

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In the event this paper is not timely filed, Appellants hereby petition for an appropriate extension of time. The fee for any such extension may be charged to our Deposit Account No. 50-2866, along with any other additional fees which may be required with respect to this paper.

Respectfully submitted,

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Enclosure: Appendix

X. APPENDIX

CLAIMS ON APPEAL

Listing of Claims:

Claim 1 (Previously Presented): An NC machining assisting system comprising: a plurality of NC machine tools each including NC program generating means and NC program improving and updating means that are connected to a central manager via a network; actual machining performance information is supplied to the central manager from the respective NC machine tools; the central manager generates a database on the basis of the collected actual machining performance information and stores the database therein; and the NC machine tools are each permitted to retrieve information necessary for machining from the database.

Claim 2 (Previously Presented): An NC machining assisting system comprising: a plurality of NC machine tools each including NC program generating means and NC program improving and updating means that are connected to a central manager via a network; actual machining performance information is supplied to the central manager from the respective NC machine tools; the central manager generates a database on the basis of the actual machining performance information collected via the network and stores the database therein; and an apparatus other than the NC machine tools which has a network connecting function is permitted to retrieve information necessary for machining from the database through connection to the central manager via the network.

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Claim 3 (Previously Presented): An NC machining assisting system as set forth in claim 1 or 2, further comprising in that the actual machining performance information includes at least one of workpiece information, tool information, cutting condition information, jig information, machine specification information, machining history information, machine operation history information, tool use history information and jig use history information.